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WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

June 29, 2011

TO: Internal File

THRU: Jim Smith, Permit Supervisor *JS 06/30/11*

FROM: Steve Christensen Environmental Scientist *SKC*

RE: 2010 4th Quarter Water Monitoring, Consolidation Coal Company, LLC,
Emery Deep Mine, C/015/0015, WQ10-4, Task ID #3687

The Emery Deep Mine is currently an in-active coalmine. The coal mining operation previously utilized room and pillar mining techniques with the use of a continuous miner machine. The coal reserves were fully extracted (thus falling into the planned subsidence category).

The approved Mining and Reclamation Plan (MRP) outlines the water monitoring requirements beginning on page VI-28. Table VI-17, *Emery Mine Hydrologic Monitoring Program* contains a comprehensive list of all groundwater (springs/seeps), surface water, groundwater monitoring wells and Utah Pollutant Discharge Elimination System (UPDES) outfalls. Plate VI-4, *Ground Water Monitoring Well and Surface Water Monitoring Site Location Map* depicts the locations of the various ground and surface water monitoring sites (including the UPDES discharge/outfall points).

1. Was data submitted for all of the MRP required sites? YES ☒ NO ☐

Springs

The MRP outlines the sampling of 5 springs within the permit and adjacent area. Flow and field parameters are sampled quarterly with water quality samples collected in the 2nd and 3rd quarters.

The Permittee submitted data for all required springs: SP-10, SP-11, SP-13, SP-14 and SP-15.

Streams

The MRP outlines the sampling of 8 surface water monitoring stations within the permit and adjacent area. Surface water monitoring site SWMS-1 is actively monitored;

however, not listed in the MRP.

Data was submitted for all required stream monitoring sites. All stream water monitoring sites produced a measurable flow with the exception of SWMS-8.

Wells

The MRP outlines the sampling of 33 ground water monitoring wells within the permit and adjacent area. Of the 33 wells, 14 are monitored quarterly for water level only. The remaining 19 wells are sampled for water quality on a quarterly basis with the exception of wells RDA-1, RDA-2, RDA-3, RDA-4, RDA-5 and RDA-6 (sampled annually in the second quarter for both field parameters and water quality).

Six of the 33 well installations (AA, H, I, R2, T1 and T2)) contain clusters of casing completed to different depths within the underlying strata. Well AA contains four completions (AA-B, AA-L, AA-M and AA-U). Wells H and I contain four completions as well (H-B, H-L, H-M, H-U and I-B, I-L, I-M and I-U respectively). Well R2 contains three completions (R2-B, R2-M and R-U). Well T1 contains two completions (T1-B and T1-U). Well T2 contains two completions as well (T2-B and T2-U).

The Permittee submitted data for all required wells.

UPDES

The Emery Deep Mine's UPDES Permit, #UT0022616, identifies 9 outfalls (001, 002, 003, 004, 005, 006, 007, 008 and 009). The discharges from each of the outfalls ultimately report to Quitchupah Creek, a tributary of Muddy Creek. The receiving waters are designated according to Utah Administrative Code (UAC) R317-2-13.1 as 2B, 3C and 4. Historically, only Outfalls 001 and 003 have ever recorded a discharge.

The Water Quality Board for the Division of Water Quality (DWQ) has approved a rule change that would allow for a site specific, in-stream standard for the Emery Deep's effluent limitations. The modified standard will establish an allowable TDS concentration of 3,800 parts per million (ppm) and a 2,000-ppm concentration of sulfate. DWQ representatives have indicated that they are waiting for Environmental Protection Agency (EPA) approval before the permit is modified from it's current standard of 3,500-ppm.

DWQ has been in negotiations with the Permittee for several years regarding a modification to their existing UPDES permit. The Permittee has entered into a compliance schedule as allowed under the rules of the Clean Water Act to modify their permit. The compliance schedule would produce a site-specific standard for the Emery Deep UPDES permit.

The Permittee submitted data for all required UPDES sites. Outfalls 001 and 003

were the only to report a discharge for this quarter.

2. Were all required parameters reported for each site? YES ☐ NO ☒

Spring Monitoring Sites

All required data was submitted for the five spring monitoring sites (as outlined in Table VI-17). All spring monitoring sites reported flows with the exception of SP-10 and SP-11.

Surface Water Monitoring Sites

The Permittee did not submit all required water quality data. An oil/grease concentration was not reported for surface water monitoring site SWMS-1A, SWMS-2, SWMS-3, SWMS-5, SWMS-9 and SWMS-10 as outlined in Table VI-17 of the approved Mining and Reclamation Plan (MRP).

Water Monitoring Wells

The Permittee did not submit all required data for the water monitoring wells. Water quality data was not reported for monitoring wells Kemmerer-L, SM1-3, SM1-4 and T1-B as outlined in Table VI-17 of the approved Mining and Reclamation Plan (MRP).

A number of wells have been impacted and, according to the Permittee, are currently being evaluated as to the possibility of their rehabilitation and access.

UPDES Monitoring Sites

All required data was submitted for the outfalls that produced a discharge (001 and 003).

3. Were any irregularities found in the data? YES ☒ NO ☐

UPDES Sites

Historically outfalls 002, 004, 005, 006, 007, 008 and 009 do not produce a discharge. These outfalls did not report a flow for this quarter.

Outfalls 001 and 003 are the primary outlets for discharging the ground water encountered within the mine works.

TDS values for Outfall 001 were again, far above the established UPDES criteria with an average value of 4,386.5 ppm reported for the quarter. However; TSS and T-Fe values remain within compliant levels.

Outfall 003 reported elevated TDS values this quarter as well with an average concentration of 3,171.33 ppm. As with Outfall 001, the remaining UPDES parameters for Outfall 003 remained well within the established compliance levels.

The compliance schedule process (that is ongoing with the Division of Water Quality) has identified a future compliance standard for Emery Deep discharge water into Quitcupah Creek of 2,000 ppm for SO₄. UPDES outfall 001 reported a SO₄ concentration of 2,519 ppm. UPDES outfall 003 reported a concentration of 1,867 ppm.

4. On what date does the MRP require a five-year re-sampling of baseline water data.

There is no commitment in the MRP to resample for baseline parameters.

5. Based on your review, what further actions, if any, do you recommend?

Continue to monitor the compliance schedule process currently underway between the Permittee and DWQ.

Work with the Permittee to evaluate the impacted water monitoring wells. Several wells have either been buried or been obstructed. A field visit will be conducted in the 2nd quarter of 2011 to evaluate the probability of rehabilitating the wells.

6. Does the Mine Operator need to submit more information to fulfill this quarter's monitoring requirements? YES ☒ NO ☐

As discussed previously, oil and grease concentrations were not reported for surface water monitoring sites SWMS-1A, SWMS-2, SWMS-3, SWMS-5, SWMS-9 and SWMS-10. Additionally, water quality data was not submitted for monitoring wells Kemmerer-L, SM1-3, SM1-4 and T1-B. The Permittee has indicated that the information is unavailable as it was not sampled for. As a result, NOV #10088 has been issued.

7. Follow-up from last quarter, if necessary.

Work with Permittee in inputting missing data into the EDI and work to insure that the Permittee understands the water monitoring requirements as outlined in the approved Mining and Reclamation Plan (MRP).